

Merced to Fresno Section Alternatives Analysis

Results from FRA Workshop October 2009

The initial review of alternatives conducted in June 2009 resulted in three station locations and four alignment alternatives carried forward for detailed evaluation:

- Castle Commerce Center Station
- Downtown Merced Transit Center Station
- Merced Amtrak Station
- Alternative A1: BNSF
- Alternative A2: UPRR/SR 99
- Alternative A3: Western Madera
- Alternative A4: BNSF and UPRR/SR 99

The detailed evaluation of these station locations and alignment alternatives resulted in the following conclusions.

- The **Downtown Merced Intermodal Transit Center Station was carried forward because** it best satisfied purpose and need, had the best access to the regional highway and public transit system and had fewer residential impacts. It is located on the UPRR right-of-way in Downtown Merced.
- **Alternatives A1 and A4 were not carried forward** because they both perform poorly with no environmental advantages when compared to Alternatives A2 and A3. They generally are not supported by the regulatory agencies due to high occurrence of vernal pools that support threatened and endangered species. While A1 and A4 appear to take advantage of the BNSF right-of-way, the right-of-way does not support high-speed train design criteria requiring the high-speed train alignment to deviate from the BNSF right-of-way in many locations resulting in new construction and high agricultural impacts. A1 also had the highest level of residential impact and had the highest travel time. A4 had similar problems and offered no distinct advantages over A1 or the other alternatives considered.
- **Alternative A2 was carried forward** because it has the second best travel time for the San Francisco to Los Angeles mainline objective, has fewer residential impacts than other alternatives, and is supported by the regulatory agencies due to fewer potential impacts on the habitats that support threatened and endangered species. A2 is the Program EIR/EIS preferred alternative, it does not have community support from Chowchilla and Madera, but does from communities in Merced County.
- **Alternative A3 was carried forward** because it supports the lowest travel time from the Bay Area to Los Angeles. A3 has the lowest estimated cost. However, it does depart from existing transportation corridors for a portion of the route and it has less regulatory agency support than Alternative A2. This alternative also has agricultural land impacts including the concern of bifurcation of farmland.

Table 1: Primary Considerations in the Alternatives Analysis

Alternatives	Advantages	Disadvantages	FRA/CHSRA Recommendation: Carry Forward?
A1 – BNSF with Downtown Merced Intermodal Transit Center Station	<ul style="list-style-type: none"> Generally follows the BNSF Corridor 	<ul style="list-style-type: none"> Slower travel time from San Jose to Fresno than A2 23% higher cost than A3 Highest residential impacts No apparent environmental advantages High agricultural impacts Not supported by community in Merced County due to residential/community impacts Not supported by regulatory agencies due to potential T&E habitat issues 	NO
A2 – UPRR with Downtown Merced Intermodal Transit Center Station	<ul style="list-style-type: none"> Fastest travel time between Merced and Fresno and second fastest between San Jose and Fresno Follows existing transportation corridors with low impacts to residential land uses Less anticipated impacts on T&E species – thus regulatory agency support PEIS alternative 	<ul style="list-style-type: none"> Highest impact to commercial district city centers Not supported by Chowchilla and Madera communities Institutional issues with the UPRR and SR 99 30% higher cost than A3 	YES
A3 – Western Madera with Downtown Merced Intermodal Transit Center Station	<ul style="list-style-type: none"> Lowest cost Fastest travel time between San Jose to Merced and second fastest between Merced to Fresno Performs well regardless of wye connection Supported by the community Less impact on human settlement 	<ul style="list-style-type: none"> Lowest cost alternative Does not follow existing transportation corridor for a portion of alignment – thus may not have regulatory agency support. Concerns about the bifurcation of agricultural lands Concerns about water district crossings. 	YES
A4 – UPRR/ SR 99 and BNSF with Downtown Merced Intermodal Transit Center Station	<ul style="list-style-type: none"> Follows existing transportation corridors Supported by some communities in project area 	<ul style="list-style-type: none"> Slowest travel time Potentially high impacts on habitat that supports T&E species Not supported by regulatory agencies 50% higher cost than A3 	NO

**Table 2:
Summary Comparison of North-South Alternatives with Best-Performing Wye Connections**

Evaluation Measures	Alternatives			
	Alternative A1 with South SR 152	Alternative A2 with South SR152 Wye	Alternative A3 with South SR152 Wye	Alternative A4 with Ave 24 Wye
Purpose and Need statement	+ Consistent	+ Consistent	+ Consistent, fastest SF to LA travel time; however, deviates from existing travel corridors west of Chowchilla and Madera	+ Consistent
Design Objectives	~ Travel time ^a : 24.26 - Cost factor: 1.23	+ Travel time ^a : 23.89 - Cost factor: 1.31	+ Travel time ^a : 23.66 + Cost factor: 1.00	- Travel time ^a : 25.40 - Cost factor: 1.50
Constructability	- Many SR99 and UPRR crossings.	- Many SR99 and UPRR crossings.	~ Not a discriminator	- Many SR99 and UPRR crossings.
Community	- 83 acres of residential + 7 acres commercial	+ 36 acres of residential - 31 acres of commercial	+ 30 acres residential ~ 17 acres of commercial	- 52 acres residential ~ 21 acres of commercial
Natural Resources	~ 10 acres of wetland affected - 298 acres of potential T&E habitat affected ~ 41 historical parcels affected + 0 acre of parkland affected - 725 acres of farmland	~ 9 acres of wetland affected + 126 acres of potential T&E habitat affected - 64 historical parcels affected + 0 acre of parkland affected + 450 acres of farmland	~ 9 acres of wetland affected - 201 acres of potential T&E habitat affected + 34 historical parcels affected + 0 acre of parkland affected - 719 acres of farmland	~ 12 acres of wetland affected ~ 169 acres of potential T&E habitat affected ~ 44 historical parcels affected + 0 acre of parkland affected ~ 567 acres of farmland
Agency and Public Support	- Some concerns expressed from Planada and Le Grand - Not supported by regulatory agencies	- Least supported by local communities + Most supported by regulatory agencies	+ Supported by communities ~ Moderate support by regulatory agencies	+ Supported by communities - Not supported by regulatory agencies
Other Factors	+ Follows existing BNSF corridor - More impact on communities	- Would involve institutional issues with the UPRR - More impact on communities	- M-F Alignment does not follow existing transportation corridors	+ Follows existing BNSF and UPRR corridors to avoid impact on human settlements
^a Travel time was calculated between the San Luis Reservoir in the San Jose to Merced Section and the Downtown Fresno Station.				

Table 3: Summary Comparison of Station Locations

Evaluation Measures	Station Locations		
	Castle Commerce Center	Downtown Merced Intermodal Transit Center	Merced Amtrak Depot
System performance: Maximize connectivity and accessibility	~ Neutral – site served by county bus routes; near regional multi-use path	+ Supportive – site serves county, regional, and intercity bus routes	+ Supportive – site serves county bus routes and intercity Amtrak rail service
Land Use: TOD development potential	~ Neutral – current plans support commercial development and limited high-density residential development	+ Supportive – planning and zoning supportive of substantial TOD; in center of downtown commercial zone	– Not Supportive – current zoning and plans support existing low-density residential land use
Land Use: Consistency with planning policy	~ Neutral – plans support commercial and residential in station area; county prefers downtown Merced site	+ Supportive – areas around station are designated economic development zones; city and county favor this site	– Not Supportive – surrounding land use not supportive of TOD; city and county opposed to this site
Community Criteria: Local traffic effects around stations	+ Minimal – no arterials would experience unacceptable levels of service	+ Minimal – no arterials would experience unacceptable levels of service	+ Minimal – no arterials would experience unacceptable levels of service
Agency and Public Support	~ Neutral – county prefers Downtown Merced site	+ Most supported	– Not supported